BOSTER BIOLOGICAL TECHNOLOGY
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Anti-CIAS1/NALP3/NLRP3 Antibody Picoband®

Catalog Number: A00034-2

About NLRP3

NLRP3 (NLR FAMILY, PYRIN DOMAIN-CONTAINING 3), also known as CIAS1, CRYOPYRIN, NALP3 or PYPAF1, is a protein that in humans is encoded by the NLRP3 (NOD-like receptor family, pryin domain containing 3) gene. The NLRP3 gene encodes a pyrin-like protein expressed predominantly in peripheral blood leukocytes. And the NLRP3 gene is mapped on 1q44. NLRP3 interacts with apoptosis-associated speck-like protein containing a CARD (ASC). The encoded protein may play a role in the regulation of inflammation and apoptosis. Mutation of the NALP3 nucleotide-binding domain reduced ATP binding, CASP1 activation, IL1B production, cell death, macromolecular complex formation, self-association, and association with ASC. Consistent with an essential role for Nlrp3 inflammasomes in antifungal immunity, Gross et al.showed that Nlrp3-deficient mice are hypersusceptible to C. albicans infection. Activation of the NLRP3 inflammasome in response to virus or to RNA was dependent upon lysosomal maturation and reactive oxygen species production in human cells. The NLRP3 inflammasome senses obesity-associated danger signals and contributes to obesity-induced inflammation and insulin resistance.

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Overview

Product Name	Anti-CIAS1/NALP3/NLRP3 Antibody Picoband®
Reactive Species	Human, Mouse, Rat
Description	Boster Bio Anti-CIAS1/NALP3/NLRP3 Antibody Picoband® catalog # A00034-2. Tested in ELISA, Flow Cytometry, WB applications. This antibody reacts with Human, Mouse, Rat. The brand Picoband indicates this is a premium antibody that guarantees superior quality, high affinity, and strong signals with minimal background in Western blot applications. Only our best-performing antibodies are designated as Picoband, ensuring unmatched performance.
Application	ELISA, Flow Cytometry, WB
Clonality	Polyclonal
Formulation	Each vial contains 4mg Trehalose, 0.9mg NaCl and 0.2mg Na2HPO4.
Storage Instructions	Store at -20˚C for one year from date of receipt. After reconstitution, at 4˚C for one month. It can also be aliquotted and stored frozen at -20˚C for six months. Avoid repeated freeze-thaw cycles.
Host	Rabbit
Uniprot ID	Q96P20

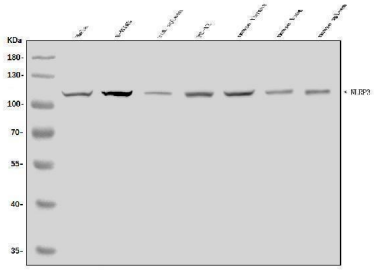
Technical Details

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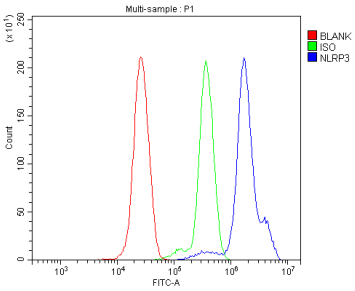
Immunogen	E.coli-derived human CIAS1/NALP3/NLRP3 recombinant protein (Position: D812-S1035).
Recommended Detection Systems	Boster recommends Enhanced Chemiluminescent Kit with anti-Rabbit IgG (EK1002) for Western blot.
Cross Reactivity	No cross-reactivity with other proteins.
Isotype	Rabbit IgG
Form	Lyophilized
Concentration	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml.
Purification	Immunogen affinity purified.
Suggested Dilutions	Western blot, 0.25-0.5ug/ml, Human, Mouse, Rat Flow Cytometry (Fixed), 1-3ug/1x10^6 cells, Human ELISA, 0.1-0.5ug/ml, - Note: For flow cytometry (FCM), suitable for fixed cells only. Not suitable for FACS or surface flow cytometry using live cells.

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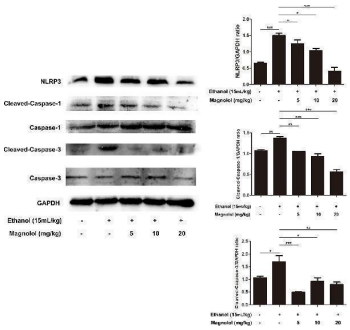
Anti-CIAS1/NALP3/NLRP3 Antibody Picoband® (A00034-2) Images



Western blot analysis of NLRP3 using anti-NLRP3 antibody (A00034-2). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30ug of sample under reducing conditions. Lane 1: human Hela whole cell lysates, Lane 2: human U-87MG whole cell lysates, Lane 3: rat spleen tissue lysates, Lane 4: rat PC-12 whole cell lysates, Lane 5: mouse thymus tissue lysates, Lane 6: mouse lung tissue lysates, Lane 7: mouse spleen tissue lysates. After Electrophoresis, proteins were transferred to a Nitrocellulose membrane at 150mA for 50-90 minutes. Blocked the membrane with 5% Non-fat Milk/ TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-NLRP3 antigen affinity purified polyclonal antibody (Catalog # A00034-2) at 0.5 ug/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for NLRP3 at approximately 118KD. The expected band size for NLRP3 is at 118KD.



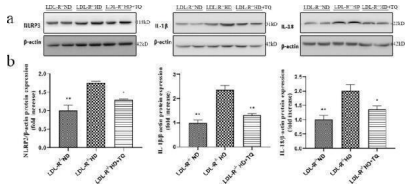
Flow Cytometry analysis of THP-1 cells using anti-NLRP3 antibody (A00034-2). Overlay histogram showing THP-1 cells stained with A00034-2 (Blue line).To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-NLRP3 Antibody (A00034-2, 1ug/1x106 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-rabbit IgG (BA1127, 5-10ug/1x106 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was rabbit IgG (1ug/1x106) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control."



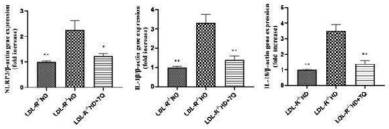
Effects of magnolol on NLRP3 inflammasome, caspase-1 and caspase-3 signaling pathway in ALD mice. Magnolol was given to mice for three times, and then alcohol was gavaged. The level of NLRP3 inflammasome, caspase-1 and caspase-3 was detected by western blotting analysis with the compared with the internal control (GAPDH). The data is presented as mean ± SD. (*P < 0.05, **P < 0.01, ***P < 0.001).Index in PubMed under a CC BY license. PMID: 31920652

NLRP3, IL-1beta, and IL-18 expression levels in the LT among the three groups of LDL-R −/− mice fed the different diets.

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(a) WB to detect the NLRP3, IL-1beta, and IL-18 expression levels in the LT. The blots edge was imprinted as a marker and were cut prior to hybridization with antibodies. (b) Bar graph depicts the quantification of NLRP3, IL-1beta, and IL-18 expression levels. Data are expressed as mean ± SEM; n = 3 in each group. *P < 0.05, **P < 0.01 vs. LDL-R −/− HD group Index in PubMed under a CC BY license. PMID: 37568105



Gene expression of pyroptosis in the LTs obtained from the three groups of LDL-R −/− mice fed the different diets. Relative mRNA expression of NLRP3, IL-1beta, and IL-18 in the LTs. Data are represented as mean ± SEM; n = 3 in each group. *P < 0.05, **P < 0.01 vs. LDL-R −/− HD group Index in PubMed under a CC BY license. PMID: 37568105

14 Publications Citing This Product

1. PubMed ID: 10.1161/ATVBAHA.120.315525, Circular RNA Calm4 Regulates Hypoxia-Induced Pulmonary Arterial Smooth Muscle Cells Pyroptosis via the Circ-Calm4/miR-124-3p/PDCD6 Axis

2. PubMed ID: 10.1016/j.bbrc.2021.03.009, Inhibition of endotoxin-induced acute lung injury in rats by bone marrow–derived mesenchymal stem cells: Role of Nrf2/HO-1 signal axis in inhibition of NLRP3 activation

3. PubMed ID: 10.1016/j.freeradbiomed.2017.05.003, Quercetin suppresses NLRP3 inflammasome activation in epithelial cells triggered by Escherichia coli O157:H7

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